The Maryland Fruit Grower

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CLASSIFICATION AND EVALUATION OF VARIETIES OF APPLES GROWN IN THE NORTHEASTERN STATES

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A series of three conferences was held by the horticulturists of the twelve northeastern states during 1936 and 1937 for the purpose of establishing commercial value ratings for the varieties of apples offered for sale in the region. The organization conference was held at Geneva, N. Y., in September, 1936, at the call of Dr. U. P. Hedrick, representing the Station Directors. The states comprising the district are Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, and West Virginia.

The evaluation of varieties is by individual states. It is quite apparent, however, that if a variety is satisfactory commercially in a majority of the states, it possesses greater adaptability and a wider commercial range than another variety that is of commercial value in only one or two states.

Basis of Evaluation and Classification

A series of seven classes was established for the evaluation of varieties as follows:

Class 1. Varieties recommended for general planting in commercial orchards in any given state.

This class comprises only varieties which can be recommended for the majority of commercial orchards in any state. The list is therefore a limited one.

Class 2. Varieties recommended for commercial planting only in special localities, for special conditions, or by certain growers in any state.

Growers should learn the nature of the limitations of any varieties in this list and under what conditions they may have commercial merit before they make commercial plantings.

Class 3. Varieties other than those in Class 1 or 2 which may be desirable for home orchards.

A person may plant in his home garden any variety he may desire. However, it is often difficult or impossible to obtain trees true-to-name of an uncommon or little grown variety.

Class 4. Varieties which can still be purchased but are of little or no commercial value and are not recommended for planting. This does not necessarily mean that the variety is devoid of desirable characters but either that it is no longer profitable or that one or more varieties of the same season are superior.

Class 5. New varieties which appear to be of promising commercial value.

Class 6. New varieties of doubtful commercial value.

Class 7. New varieties of no apparent commercial value.

Where a variety has received an approved rating for commercial purposes it means for its particular season of ripening. A very early maturing variety and a mid-season variety may be given a Class 1 rating but this does not necessarily mean that the earlier variety is equal to the later one in either edible quality or in general commercial qualities.

Evaluated List to Aid Grower in His Selection

Attention is called to the fact that the list of varieties given as Class 1, 2, or 5 in any state does not constitute a recommended list for any grower in that state to plant. It is merely an evaluated list to assist growers and nurserymen in making

final selections. Growers should seek special information from their own state authorities before making a final decision in regard to planting lists.

Regional Variations

In these twelve northeastern states there are widely varying soil and climatic conditions. Varieties respond to these different conditions. Some varieties are especially sensitive to high summer temperatures; differences in winter hardiness are well known. We are coming to understand that varieties differ in their ability to resist drouth and to produce well on soils deficient in certain mineral elements. Furthermore the variety ratings are expressions of opinion of Experiment Station pomologists in the several states. It is to be expected that evaluations will differ and so they do. Yet the evaluations are nearly or quite unanimous with respect to certain varieties. McIntosh and Delicious meet with very general approval and there is a considerable list of varieties which are almost or quite unanimously rated as being without commercial value.

Older Varieties

In Table I are the evaluation of 62 older and well-known varieties and in Table II those of 68 newer varieties. These tables include nearly all varieties mentioned in the preliminary inquiry. There are, of course, a great many other varieties that might have been included but most of them are of little or no importance or are too little known to be worth including.

Varieties Which Should Be Discarded

A total of twenty-one older varieties are almost or quite unanimously recommended for discard as follows:

Alexander
Blue Pearmain
Chenango
Early Harvest
Early Ripe
Early Strawberry
Fourth of July
Gano
Henry Clay
Hubbardston
King
King David
Lowland Raspberry
Maiden Blush
Wolf River
Oliver
Porter
Rambo
Sutton
Winter Banana
Yellow Belleflower

In addition to this group there are a number of other varieties that have value to a limited degree or in certain localities. These are:

Ben Davis
Canada Red
Esopus Spitzenburg
Fall Pippin
Fameuse
Opalescent
Red Astrachan
Roxbury Russet
Smokehouse
Stark
Summer Rambo
Tolman
Twenty Ounce
Wagener

Ben Davis and Esopus Spitzenburg are generally condemned but Ben Davis is in some demand in western New York for drying and Esopus Spitzenburg being of high quality is found desirable by some growers for local and roadside stand trade. Canada Red is favored only in Pennsylvania. Fall Pippin is favored only for special conditions in New Jersey and for home use in two states. Fameuse and Roxbury Russet are still recommended for home use only in the northern area. Red Astrachan is in the discard in the southern area and is valued in the north only for home use or special conditions. Smokehouse and Summer Rambo are in the discard except in Pennsylvania and some nearby states. Tolman still has a little approval as a winter sweet apple but will probably soon be replaced by better varieties; sweet apples are in very limited demand. Twenty Ounce is discarded except in New York and New Jersey where it meets with limited favor. Wagener is somewhat favored probably where a late variety is desired as a filler. Opalescent is placed in class 2 by two, and Stark by three states.

The older varieties that do meet with more or less approval as commercial varieties over a large part or all of the area deserve mention. There are nineteen of these as follows:

Baldwin
Delicious
Duchess
Gravenstein
Grimes
Jonathan
McIntosh
Mammoth Black Twig
Northern Spy
Northwestern Greening
R. I. Greening
Rome
Stayman
Wealthy
Williams
Winesap
Yellow Newtown
Yellow Transparent
York Imperial

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Statistics show that millions of fruit trees have died in the past few years from disease and low winter temperatures, other millions are in a weakened condition to the point where they are unproductive and unprofitable. Again they show new plantings of fruit trees to be far below normal and have been for more than ten years.

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Keep your orchards on a profitable basis by selecting the best varieties obtainable in newer and better fruits such as:

BLAXTAYMAN
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YELLOW DELICIOUS
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ELBERTA
SHIPPERS LATE RED
The "COLORA" Red York
CORTLAND
GALLIA BEAUTY, Red Rome
VEDETTE
HALE HAVEN
GAGE ELBERTA

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Four of these varieties: McIntosh, Delicious, Rome, and Stayman, have greater and more general approval than the others. Four others: Baldwin, R. I. Greening, Northern Spy, and Wealthy, are still important commercial varieties but are probably losing favor; Wealthy is placed in Class 1 by only one state. Five others: Grimes, Jonathan, Northwestern Greening, Williams, and Yellow Transparent, are placed in Class 1 by only one or two states and in Class 2 by from two to four states in the twelve concerned. They are valuable only within narrow limits.

Gravenstein and Yellow Newtown find only very limited use but still have value in certain localities. Duchess is put in Class 1 by only one state and in Class 2 by four states. Winesap and York Imperial are apparently less esteemed than in former years. Mammoth Black Twig meets with still less favor and perhaps should be placed among the varieties for the discard.

The four varieties first mentioned above are the only one that are maintaining favor among Horticulturists, the others are scarcely doing so and most of them are more or less definitely on the way out.

Newer Varieties

The total of 68 newer varieties listed in Table II is impressive and indicates the activities now going on among fruit breeders. Few of them have gained general approval. Three varieties seem to have special merit. These are:

Cortland	Early McIntosh	Golden Delicious

Cortland has been tested longer than most new varieties and seems to meet with approval in most states. It is being used to replace Baldwin trees killed in the recent severe winters. Early McIntosh, perhaps partly because of its name, is gaining favor and Golden Delicious, because of its many good qualities, may go far in breaking down prejudices in favor of red varieties. Growers must learn how to grow and handle all new varieties.

Somewhat less promising but still favored enough to suggest possibilities, is a group of nine newer varieties. More information will show whether or not they are to have places among our commercial varieties. These are:

Crimson Beauty	Lobo	Melba
Kendall	Lodi	Milton
Linda	Macoun	Turley

Crimson Beauty is not new but has been tried but little in this region. It is a little earlier than Yellow Transparent and a vigorous red variety which merits further tests. Kendall is very new and it remains to be learned whether it has value to prolong the McIntosh season. Lodi is more vigorous and of larger size than Yellow Transparent but unfortunately a week or two later in season. Macoun is rated as promising in five states. Melba may have limited value as a dessert apple of the Duchess season. Milton competes with Early McIntosh or Wealthy and although very attractive, the fruit is sometimes unsymmetrical. Turley meets with increasing favor in the southern part of this region.

There are twelve newer varieties that seem to be of very doubtful commercial value. These are:

Carlton	Newfane	Red Sauce
Joyce	Orleans	Secor
Medina	Patricia	Sharon
Monmouth Beauty	Pedro	
Monmouth	Ranier	

Mutations or "Bud Sports"

The so-called bud sports of many apple varieties are exciting much attention and are found in nurseries in increasing numbers. Most of these differ by increased red coloration of the fruit but they may differ from the parent variety in other ways: little is known about any such differences and lack of space forbids discussion here. There are thirteen such varieties in this list. Gallia is here included though it is recognized that it may be a seedling and not a sport. Five varieties of this class seem to be considered more promising than the others.

Gallia	Red Spy	Starking
Red Gravenstein	Richared	

Gallia is being grown by some nurserymen under the name Red Rome, also as Gallia or Gallia Beauty. There are also other red sports of Rome in propagation. There are many red sports of Gravenstein but the one introduced by the New

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York Fruit Testing Association is the one generally propagated and is doubtless the one reported upon. Two or more red sports of Northern Spy are propagated but the one here referred to is the one introduced by the New York Fruit Testing Association.

Two sports of Delicious, Richared and Starking, are listed. Starking is generally of a darker red color, sometimes too intense to be attractive, while Richared is generally of a brighter, more attractive red. This is the reason for preferring Richared for the northern section where Delicious may not develop good color. Many nurseries are growing red forms of Delicious under various names such as "double Red Delicious," "Dark Red Delicious," "Blood Red Delicious," etc. The identity of these is not certain but some of them appear to be one of the two mentioned above.

There remain eight of this group that meet with less approval perhaps because they are yet too little known:

Blackmack	Red Duchess	Stamared
Blackjon	Red Stark	Yorking
Blaxtayman	Red Twenty Ounce	

There are at least two sports of Duchess grown, the Daniels and Van Buren. The former has been more widely grown and is doubtless the one here considered though the Van Buren may prove superior.

There are several strains of McIntosh which may be placed in two groups: in one group the fruits are striped or splashed and in the other they are evenly colored. No distinction was made in the evaluations.

Evaluation of Varieties by Districts

The northeastern states may be divided into two districts based on climatic differences. New York and New England make up the northern district and the remaining states: New Jersey, Pennsylvania, Delaware, Maryland, and West Virginia comprise the southern district. Of course the true boundary does not follow state lines, it depends on latitude and also on elevation. Therefore the higher elevations of New Jersey and Pennsylvania have climatic conditions somewhat similar to New England.

The chief climatic differences are the winter minimum which becomes lower as one passes north and to higher elevations, and a longer growing season and higher summer temperatures in the South. In the extreme North, resistance to winter cold becomes an important variety characteristic while in the South varieties that can withstand summer heat and those that require a longer growing season meet with approval.

The Northern District

The outstanding variety is McIntosh. Others which are ranked highly are Cortland, Northern Spy, and Delicious. Among the newer varieties Early McIntosh meets with much favor and Golden Delicious is making a favorable impression. Among those classed as red sports: Gallia, Red Gravenstein, Red Spy, Richared, and Starking meet with more favor than the others. Baldwin trees killed in the recent severe winters are being replaced with hardier varieties to a considerable extent though the variety still meets with much favor. Gravenstein is recommended only for special conditions and for home orchards. Rhode Island Greening and Wealthy also have some commercial value for special conditions.

There is some tendency to plant well-known varieties which are not adapted to conditions in this district. The following varieties should be mentioned as of little or no value in the northern district.

Mammoth Black Twig	Northwestern Greening	Winesap
Jonathan	Rome	Yellow Transparent
Grimes	Williams	York

The Southern District

The more southerly section of the Northeast experiences a longer growing season and higher summer temperatures than New York and New England. Some summer and fall varieties of apples are worthless commercially if they experience a period of several days when the maximum summer temperature is 90° F. and above. Such factors and others tend to cause differences in the evaluation of varieties to some extent within this district. New Jersey and Pennsylvania agree rather closely in evaluating certain varieties but such ratings differ from those given for

Delaware, Maryland, and West Virginia. This will be illustrated later. In the district as a whole: Rome, Stayman, and Delicious are the outstanding varieties and Golden Delicious among the newer varieties is well regarded. To a more limited extent Grimes, Jonathan, McIntosh and York are favored commercially. Among the "red mutations" Gallia is rated highly. Starking is also well regarded, probably because of its habit of coloring so early which permits of early sale. Other "red sports" are being planted but are difficult to evaluate without more data. Grimes is rapidly being discarded in New Jersey and Jonathan and York are little planted. This calls attention again to the varietion in conditions in different parts of the Southern District. For example, York is placed in Class 1 south of Pennsylvania, but in Class 2 in New Jersey and Pennsylvania. Winesap is recommended for discard in New Jersey but highly regarded further south. Williams is also recommended for discard in New Jersey, but well regarded by the three more southerly states of the district. This demonstrates the importance of evaluation of varieties by states and the fact that growers should consult their state service agencies in making selections of varieties.

Some Final Comments

While no extended comment on the tabulations seems necessary there is need for a few explanations. Reports were received on Mammoth Black Twig and Paragon. Ratings were almost identical. If these names represented different varieties, they are now hopelessly confused. Both are included under the name Mammoth Black Twig. While Arkansas is the officially recognized name for this variety it is almost universally known among nurserymen and fruit growers as Mammoth Black Twig or simply Black Twig. The same relation exists between the names Oldenburg and Duchess, also Scarlet Pippin and Crimson Beauty. It seems better to recognize the names more commonly used. A variety under the name Yellow Delicious which cannot be distinguished from Golden Delicious is now commonly found in nurseries.

This report should not be considered as final. Indeed no final report will ever be presented. The variety question merits serious and continuous study as changed conditions and new varieties are continually presented for consideration.

The evaluations for the several states were made by the members of the College and Experiment Station staff working in the field of Pomology given below. Doubtless other staff members have contributed to the evaluations. It has been necessary for the compiler to harmonize ratings in a very few cases but without inserting his own opinions.

Maine—J. H. Waring, A. K. Gardner.
New Hampshire—G. F. Potter, C. O. Rawlings.
Vermont—M. B. Cummings.
Massachusetts—R. A. Van Meter, J. K. Shaw.
Rhode Island—E. P. Christopher.
Connecticut—S. P. Hollister, E. M. Stoddard.
New York—G. H. Lowe, L. H. MacDaniels.
Pennsylvania—F. N. Fagan, R. D. Anthony.
New Jersey—M. A. Blake, A. J. Farley.
Delaware—F. S. Lagasse, L. R. Detjen.
Maryland—A. L. Schrader, I. C. Haut.
West Virginia—R. S. Marsh, W. H. Childs.

TABLE I

Evaluation of Apple Varieties Which Have Been Grown for a Considerable Period of Time in the Northeastern States.

* Note.—The numbers in Tables 1 and 2 refer to the seven classes, given in the first part of this report, and do not represent a scale from high to low values.

Varieties	Maine	N. H.	Vt.	Mass.	Conn.	R. I.	N. Y.	N. J.	Penn.	Del.	Md.	W. Va.
Alexander	4	4	–	4	4	–	4	4	4	–	4	4
Baldwin	2	2	4	2	1	1	2	2	2	3	4	4

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4. DECREASES JUNE DROP;
5. PRODUCES VIGOROUS TERMINAL GROWTH;
6. MAKES HIGH YIELDS OF QUALITY FRUIT—
7. SWEETENS THE SOIL—LESSENS NEED FOR LIME —AND—
8. MAKES SOIL POTASH MORE AVAILABLE.

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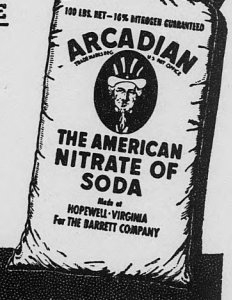
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Varieties	Maine	N. H.	Vt.	Mass.	Conn.	R. I.	N. Y.	N. J.	Penn.	Del.	Md.	W. Va.
Ben Davis	4	4	4	4	4	4	2	4	2	4	4	4
Blue Pearmain	--	4	4	4	4	--	4	4	--	--	--	--
Canada Red	--	3	4	4	3	--	4	4	2	--	4	--
Chenango	3	--	4	4	4	--	4	4	4	--	4	--
Delicious	2	2	1	2	2	2	2	2	1	1	1	2
Duchess	3	3	--	2	2	2	4	4	4	1	3	3
Early Harvest	--	4	4	4	4	--	4	4	4	--	4	2
Early Ripe	--	--	--	--	--	--	4	4	4	4	--	--
Early Strawberry	--	--	4	--	--	--	4	4	--	--	4	3
Esopus	--	--	--	4	4	--	2	4	4	--	--	--
Fall Pippin	--	--	4	4	3	--	3	2	4	--	--	--
Fameuse	3	3	3	4	--	--	4	4	4	--	4	3
Fourth of July	--	--	--	4	--	--	4	4	--	4	4	--
Gano	4	4	--	4	4	--	4	4	2	4	4	4
Gravenstein	3	2	3	2	3	2	2	2	2	3	4	4
Grimes	--	4	2	4	3	--	4	4	2	1	2	2
Henry Clay	--	--	--	--	--	--	4	4	2	--	4	4
Hubbardston	4	4	3	4	4	--	4	4	2	--	4	4
Jonathan	4	4	3	4	4	--	4	2	2	1	1	2
King	4	4	4	4	4	4	4	4	4	--	4	4
King David	4	4	4	4	4	--	4	4	2	4	4	4
Lilly of Kent	--	--	--	--	--	--	--	4	--	2	--	--
Lowland Raspberry	--	4	--	4	4	--	4	4	--	--	4	--
Lowry	--	--	--	--	--	--	7	6	--	--	6	2
McIntosh	1	1	1	1	1	1	1	1	2	3	2	3
Mammoth Black Twig	--	4	6	4	4	--	4	2	4	1	2	4
Maiden Blush	--	4	4	4	4	4	4	4	4	--	4	3
Nero	--	--	4	--	--	--	4	4	4	4	4	--
Nodhead	3	3	2	4	--	--	4	4	--	--	--	--
Northern Spy	2	2	1	2	2	2	1	4	2	--	4	4
N. W. Greening	4	4	1	4	4	4	4	4	2	2	2	2
Oliver	--	4	4	4	--	--	4	4	--	--	4	--
Opalescent	4	4	2	4	4	2	4	4	--	--	4	--
Porter	3	4	4	4	3	--	4	4	--	--	4	--
Pound Sweet	--	4	4	3	3	--	4	4	--	--	--	3
Quebec Sweet	--	--	2	--	--	--	--	--	--	--	--	--
Rambo	--	--	4	4	--	--	4	4	4	--	--	--
Red Astrachan	3	3	4	2	4	3	4	4	4	4	4	4
Red Twenty Ounce	--	--	4	--	--	--	--	--	--	--	--	--
R. I. Greening	4	4	2	2	2	1	1	2	2	--	4	4
Rome	4	4	4	4	4	2	2	1	1	1	1	1
Roxbury Russet	4	3	--	3	3	4	3	4	4	--	--	4
Smokehouse	--	--	--	4	--	--	4	4	2	3	3	4
Stark	4	2	6	4	4	4	4	2	4	2	3	4
Starr	--	--	--	--	--	--	4	2	--	4	4	--
Stayman	--	4	6	2	2	--	4	1	2	1	1	1
Summer Rambo	--	--	--	--	--	--	4	4	2	--	1	--
Sutton	--	--	4	4	4	--	4	4	4	3	4	--
Tolman	2	4	4	3	3	--	4	4	4	--	4	3
Twenty Ounce	4	--	4	4	4	--	2	2	4	--	4	4
Wagener	4	2	5	2	3	2	4	4	2	--	4	3
Wealthy	2	4	2	2	2	2	1	2	2	--	4	2
Williams	3	4	4	4	4	4	4	4	--	1	2	2
Winesap	4	4	4	4	4	4	4	4	2	1	2	1
Winter Banana	4	4	4	4	4	4	4	4	4	--	4	3
Wolf River	2	2	4	4	4	4	4	4	4	--	4	4
Yellow Belleflower	--	4	4	4	4	4	4	4	4	--	--	--
Yellow Newtown	--	--	--	4	4	4	2	4	2	--	2	3
Yellow Transparent	--	3	4	4	4	4	4	4	2	1	2	2
York	--	4	4	4	4	4	4	2	2	1	1	1

TABLE II

Evaluation of Apple Varieties Which May Be Classed as Rather New

* *Note.*—The numbers in Tables 1 and 2 refer to the seven classes, given in the first part of this report and do not represent a scale from high to low values.

Varieties	Maine	N. H.	Vt.	Mass.	Conn.	R. I.	N. Y.	N. J.	Penn.	Del.	Md.	W. Va.
Ames	--	--	--	--	--	--	7	6	--	--	--	--
Anoka	--	--	--	--	--	--	7	7	--	--	--	--
Beforest	--	--	--	--	--	--	--	7	--	--	--	--
Blackjon	--	--	--	--	--	--	--	--	--	--	5	--
Blackmack	--	--	5	--	--	--	--	--	--	--	--	--
Blaxtayman	--	7	7	--	--	--	7	--	5	--	5	5
Carlton	--	--	--	7	7	--	5	6	--	--	6	--
Cortland	1	1	1	2	1	2	1	2	1	--	5	5
Crimson Beauty	--	--	--	2	--	--	6	6	2	2	--	--
Diadem	--	--	--	6	--	--	7	--	--	--	--	--
Diana	--	--	6	--	--	--	6	--	--	--	--	--
Earlham	--	--	--	--	--	--	--	6	--	--	--	--
Early McIntosh	2-5	2	2	5	5	2-5	2	3	2	--	6	6
Edgewood	--	--	--	--	--	--	--	6	--	--	--	--
Erickson	--	--	--	--	--	--	7	--	--	--	--	--
Forerunner	--	--	--	--	--	--	--	7	--	--	--	--
Folwell	--	--	--	--	--	--	7	--	--	--	--	--
Gallia	--	7	--	2	6	--	5	1	2	5	5	5
Golden Winesap	--	--	--	--	--	--	7	4	4	--	--	--
Goldo	--	--	--	--	--	--	7	7	--	--	--	--
Golden Delicious	2	2	--	5	3	2	6	2	2	1	2	2
Haralson	--	--	2	--	--	--	7	--	--	--	--	--
Hawkeye	--	--	--	--	--	--	4	7	--	--	--	--
Hume	--	--	3	--	7	--	6	--	--	--	--	--
Joyce	--	--	2	6	7	--	6	6	6	--	--	--
Keetosh	--	--	2	--	--	--	--	--	7	--	--	--
Kendall	--	5	2	5	--	--	5	--	--	--	5	--
Kildare	--	--	--	--	--	--	--	4	4	--	--	--
Lawfam	--	--	5	--	--	--	--	6	--	--	--	--
Lawmac	--	--	--	--	--	--	--	6	--	--	--	--
Linda	--	--	5	--	--	--	6	6	--	--	--	--
Lobo	6	6	5	6	6	--	6	6	6	--	5	--
Lodi	5	--	--	5	6	--	2	6	--	--	5	5
Macoun	6	3	5	6	6	5	5	5	2	--	6	--
Macross	--	--	--	--	6	--	7	7	--	--	--	--
McIntosh 3609	--	--	--	--	7	--	4	--	--	--	--	--
Mavis	--	--	--	--	--	--	--	6	--	--	--	--
Medina	--	--	6	6	7	7	6	7	--	--	3	--
Medford	--	--	--	--	--	--	--	7	--	--	--	--
Melba	5	3	3	6	3	--	3	3	5	--	2	7
Milton	2	5	6	6	5	6	2	7	6	--	6	--
Monoma	--	--	--	--	--	--	--	7	7	--	--	--
Monmouth Beauty	--	--	--	--	--	--	7	6	4	--	6	--
Newfane	--	--	--	--	7	--	5	6	--	--	--	--
Orleans	7	--	--	6	7	--	5	6	--	--	6	--
Patricia	--	--	6	5	6	--	--	6	--	--	--	--
Pedro	--	--	6	7	7	--	7	7	--	--	--	--
Peerless	--	--	--	--	--	--	7	--	--	--	--	--
Petrel	--	--	--	--	--	--	7	3	--	--	--	--
Ranier	--	--	6	4	--	--	7	4	--	--	--	--
Red Duchess	5	--	--	5	6	5	--	7	4	--	2	6
Red Gravenstein	--	2	--	2	6	--	2	2	--	--	6	6

START NOW

• It's never too early to plan your spray program. For dormant applications GRASSELLI filtered Lime Sulfur contains the proper amount of polysulfides for maximum results. It is clear, cherry-red in color and contains no sludge—and when you swing into lead arsenate don't forget that NuREXFORM is compatible with Lime Sulfur.

For a heavier type lead use GRASSELLI. It deposits a heavy film that is desirable for protection against severe codling moth infestation.

See your dealer now for early season requirements.

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GRASSELLI CHEMICALS DEPARTMENT

WILMINGTON DUPONT DELAWARE

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District Sales Office . . . 3500 Gray's Ferry Rd., Philadelphia, Pa.
Representative . . . G. B. Radford, Winchester, Va.

Varieties	Maine	N. H.	Vt.	Mass.	Conn.	R. I.	N. Y.	N. J.	Penna.	Del.	Md.	W. Va.
Red Sauce	--	--	--	7	7	--	7	--	--	--	6	--
Red Stark	--	5	--	4	6	--	4	6	2	--	--	6
Red Spy	2	5	6	5	7	5	2	6	6	--	--	7
Richared	2	2	6	2	5	2	--	6	2	--	5	5
Secor	--	--	7	--	7	--	7	6	7	--	--	--
Sharon	--	--	6	--	--	--	7	7	7	--	--	--
Sparta	--	--	--	--	--	--	--	--	7	--	--	--
Spilaw	--	--	--	--	--	--	--	6	--	--	--	--
Starking	2	2	5	4	5	4	--	2	2	1	5	5
Staymared	--	7	--	--	--	--	7	6	2	1	5	5
Stonehenge	--	--	--	--	--	--	--	7	--	--	--	--
Stonetosh	--	--	5	--	--	--	--	--	--	--	--	--
Sweet Delicious	--	--	7	--	7	--	2	7	--	6	6	--
Sweet McIntosh	--	--	6	--	6	--	3	6	--	--	6	--
Turley	--	--	--	--	--	--	6	5	6	--	5	5
Yorking	--	--	--	--	--	--	7	--	--	--	5	--

COLD STORAGE HOLDINGS

The report released March 11 by the U. S. Bureau of Agricultural Economics is as follows:

	Mar. 1, 1937	Feb. 1, 1938	Mar. 1, 1938
Apples, barrels	121,000	322,000	217,000
Apples, Western boxes	6,809,000	10,958,000	8,017,000
Apples, bushels	5,021,000	14,356,000	10,905,000
Apples, TOTAL	12,193,000	26,280,000	19,573,000

DOES IT PAY TO SPACE OR THIN OUT STRAWBERRY PLANTS?

Yield of Blakemore Strawberries from a typical matted row on left and a double hill spaced row on right. The fruit at stakes was picked from the same length of row and illustrates the relative yield and quality of fruit at this picking.

Courtesy The Southern Planter Magazine.

MAGNETIC SPRAY

the Sulphur that gives

MAXIMUM CONTROL

Every grower knows that it is the sulphur in the spray that does the work—the higher the sulphur content the more effective the spray. "Magnetic-Spray" is extremely fine, 98.5% pure and is the most effective wettable sulphur obtainable. Remember the purity when you buy—98.5%.

For those growers whose requirements can be met with a wettable sulphur of not quite so high a degree of purity, we recommend "Crown" Brand Wettable Sulphur, 95% sulphur—5% inert.

OTHER STAUFFER PRODUCTS

"Magnetic" Catalytic Sulphur
"Magnetic" Humidust
"Electric" Super-Adhesive Dusting Sulphur
"Magnetic" Rotenone-Sulphur Dust and Spray
"Magnetic" Cryolite-Sulphur Dust and Spray
"Magnetic" Pyrethrum-Sulphur Dust

STAUFFER CHEMICAL CO.

420 Lexington Ave., New York City
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Stauffer Chemical Co., 420 Lex. Ave., N.Y.C.
Please send the following literature

"Magnetic Spray" Wettable Sulphur ( )
"Electric" Dusting Sulphur ( )
"Magnetic" Catalytic Sulphur ( )
"Magnetic" Humidust ( )

Name .....
Address .....

Varieties	Maine	N. H.	Vt.	Mass.	Conn.	R. I.	N. Y.	N. J.	Penna.	Del.	Md.	W. Va.
Red Sauce	–	–	–	7	7	–	7	–	–	–	6	–
Red Stark	–	5	–	4	6	–	4	6	2	–	–	6
Red Spy	2	5	6	5	7	5	2	6	6	–	–	7
Richared	2	2	6	2	5	2	–	6	2	–	5	5
Secor	–	–	7	–	7	–	7	6	7	–	–	–
Sharon	–	–	6	–	–	–	7	7	7	–	–	–
Sparta	–	–	–	–	–	–	–	–	7	–	–	–
Spilaw	–	–	–	–	–	–	–	6	–	–	–	–
Starking	2	2	5	4	5	4	–	2	2	1	5	5
Staymared	–	7	–	–	–	–	7	6	2	1	5	5
Stonehenge	–	–	–	–	–	–	–	7	–	–	–	–
Stonetosh	–	–	5	–	–	–	–	–	–	–	–	–
Sweet Delicious	–	–	7	–	7	–	2	7	–	6	6	–
Sweet McIntosh	–	–	6	–	6	–	3	6	–	–	6	–
Turley	–	–	–	–	–	–	6	5	6	–	5	5
Yorking	–	–	–	–	–	–	7	–	–	–	5	–

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Name .....

Address .....

WHAT'S THIS?

The fruit situation, this year, has caused a lot of discussion among growers. Horticultural Society meetings all over the country had to do with present problems and future action, if not immediate action. Let's pick up a few things that were said or done. First, Virginia growers are considering a cull law, to put a bottom in their marketable fruit. The New York-New England Apple Institute which advertises New England apples suggests the following:

"There are several definite ways of reducing the number of culls. First, destroy trees which are non-profitable because of old age, disease, winter injury, inaccessibility for spraying or undesirable varieties. Many growers have trees which cost more to spray and care for than they realize from them. It pays to remove them now. Apple trees make splendid fire wood. Second, pruning is another aid to the elimination of cull apples if spray cannot reach all of the trees. Larger, better colored, cleaner fruit will result. Third, effective materials which control insects and disease are almost essential to the production of good apples. Fourth, thinning can often reduce the off-grade fruit to a minimum and leave a fine crop of marketable apples. These practices are costly. It is folly to keep trees which cannot possibly pay back money spent on them. It is cheaper to remove them than to care for them and it is mighty good exercise in wintertime."

A New York grower suggested the use of the candid camera to show growers how their poor grades of fruit appear in the store displays. A prominent Indiana grower suggested in a recent letter, that all trees over 35 years old be cut down; all fillers removed; all poor varieties cut; all marginal orchards made into fire wood. He even suggested that trees that will not bloom this year, be taken out, if possible, saving 2 years' work before a crop is borne, and even trees that bloom too heavily this year be cut out, as thinning will not pay at present prices. We hear that the Northwest growers that can afford it, are cutting out orchards or parts of them, and are diversifying their crops. Then we look at "Indiana Hoosier Horticulture" and find such things as the following:

"R. G. Phillips once said, 'There are too many good and poor apples produced for all to be sold at a profit, but not too many good apples.'

"Lack of size is the most common cause of cull apples. Disease and insect damage, as well as the many other causes of culls, are secondary to this major cause in the average orchard.

"In Missouri studies, lack of color was second in importance. These two causes (lack of size and color) accounted for an average of about 30 per cent of the cull fruit in two seasons of investigation."

"Many an apple tree is petted along at an annual cost far greater than it could possibly return. It may be only half a tree. Mice or low temperatures may have crippled it beyond practical repair. Maybe it's a Black Twig or similar low yielding variety. It may merely have passed its profitable bearing age. In any case, now that apple growing has become such a serious dollar and cents business one just can't afford to keep the boarders.

"It is true, of course, that some trees are now low in vigor and producing low yields for some cause which can be profitably corrected. Possibly because of excessive erosion, crowding by fillers, etc., and a mulch of straw has worked miracles in similar instances.

"An inventory is in order. Doctor those that can be profitably doctored and make firewood from the others."

We also know that Maryland growers are taking out trees that are not making costs. It seems apparent that a house-cleaning is going on. Every grower must be his own judge as to what he will do. We are told that the solution lies in producing more *good* apples. No matter what else is done, thorough spraying is one thing that must be done.

There will be a move toward economy, and less cultivation may be done. Also, it is possible to apply nitrogen fertilizer such as nitrate of soda to the trees at time of swelling of the blossom buds, giving each tree a dose of fertilizer in proportion to its bloom prospects, and this allows a chance to cut down blossom buds for next year's crop. These are mere suggestions, and each grower must work out his own economy program.

In view of all this cutting down of trees, one wonders why a paper on varieties is being published. The answer is that there will always be some new planting going on, and it is the hope that some information on the new and old varieties will save the grower from planting stuff that will have to be given the axe at some

future time, because the variety was not what he had expected. It is hoped that the variety information will be of help to any growers who are planting replacement trees, or who are wondering about some of the new varieties that we have heard so much about.

APHIS AND CURCULIO

In a recent paper, Dr. C. Graham, who has been working with insects in the Western part of Maryland, stated that it is definitely proven that early sprays applied to the outside rows of the peach orchard will greatly assist in curculio control, as the curculio were feeding on the trees on the edge of the orchard as high as ten days before they attacked trees several rows in from the edge of the orchard.

He had also observed, but had not conclusively proven that in years when the green aphis appears in great numbers on the apple buds, the rosy aphis will not become a serious pest. The possible explanation seems to be that there is a great build-up of parasites that kill off the rosy aphis by the time it hatches from the eggs.

SOWING SEED OR FERTILIZER

The Cyclone Seeder Company, Urbana, Indiana, makes a combination Broadcast Distributor selling for $3.75 postpaid, that scatters seed or fertilizer, broadcast. It holds about a half-bushel. Looks like a nice little thing to seed or fertilize the cover crop.

THE MARYLAND APPLE SHOW

The Maryland Apple Show was held in connection with the Fortieth Annual Meeting of the Maryland State Horticultural Society in Baltimore. The final plans for the Show were unavoidably late in reaching the growers, and this connected with the confused condition of the apple market, probably prevented more growers from taking an interest in the Show. In general, the fruit exhibited was of good quality and presented an attractive appearance. There was much favorable comment about the Show, and from the many inquiries, it is certain that such exhibits arouse public interest in apples. It is hoped that the rather small Show this year, can be built up to a larger exhibit in time to come.

The premium money was allotted by the State Fair Board. There were 30 plates (5 apples each), 14 diamonds (16 apples each), and 11 bushels entered; a total of 55 entries by 8 growers. Sixteen varieties were exhibited. The growers exhibiting were located in Washington, Allegany, Baltimore, Cecil, Charles and Harford counties. In addition, the Horticultural Department of the University of Maryland had an educational exhibit of several of the new varieties of apples grown in the University orchards in Prince George's County.

The awards were as follows:

J. E. Parks, Cockeysville—Plates: First—Jonathan, Wolf River, Tompkins, Smokehouse; Second—Grimes; Third—Black Twig. Diamond, First—Jonathan.

Lloyd Balderston, Colora—Plates: First—Stayman, Grimes, Delicious. Diamonds: First—Stayman, Delicious; Second—Grimes; Third—Golden Delicious. Bushel—First—Stayman.

J. A. Cohill, Hancock—Plate: First—Rome, Diamonds; First—Rome; Second—Jonathan, Delicious. Bushels; First—Jonathan, Rome, Delicious; Third—Stayman.

W. P. Hoopes, Forest Hill—Plates: First—Blaxtayman, Lowry; Second—Black Twig, York; Third—Stayman. Diamonds; Second—Blaxtayman, Black Twig: Third—Stayman.

E. P. Gent, Cockeysville—Plate: First—Starking, Gano, York; Third—Paradise.

B. Carlisle Barnes, La Plata—Bushel: First—Black Twig.

Fred R. Sloan, Lonaconing—Plate: First—Gano.

J. E. Lippincott, Colora—Plate: First—Black Twig; Second—Stayman, Delicious, Rome. Diamonds: Second—Stayman, Winesap, Rome. Bushels: Second—Stayman, Rome, Black Twig.

A grower is looking for a small, used apple polisher. If you have one for sale, notify A. F. Vierheller, College Park, Md.

THE EASTERN BOX

There seems to be a mistaken idea that the Maryland State Horticultural Society is sponsoring the 1 1-5 bushel Eastern box. At the last meeting, the Society went on record as favoring the 1 1-5 bushel box, merely as a means of standardizing the box, instead of having several different sized boxes as at present. As to whether or not to use the box or basket, is left up to the grower. Some markets are calling for the box, with fruit wrapped and counted. The demands of the markets are things which the grower must meet, whether it be box or barrel.

A NEW APPOINTMENT

Dr. Charles M. Mahoney, recently of Michigan Agricultural College has been appointed as Professor of Olericulture at University of Maryland. Dr. Mahoney was highly regarded by the vegetable growers of Michigan, and Maryland is fortunate in getting so capable a man to work with the Maryland vegetable industry.

TWO REASONABLE IDEAS

Did you look over the ads in the annual program? Have you been watching the ones in the later issues? These manufacturers advertise with us because they have faith in the Maryland fruit industry, and because they appreciate your past patronage. Their ads help greatly in making this publication possible. Read every ad, and give our advertisers a chance at your business.

Have you paid your 1938 membership? *Only paid members receive the Annual Proceedings* and only paid members feel that they are a part of the Society. Things that come to cheaply are but little appreciated. Let's have a real, strong membership that will be able to speak for the Maryland fruit industry whenever we are called upon. Why not send that dollar—cash, check or money order to the Secretary, College Park, Maryland?

CAN WE ASSIST YOU?

This organization lends money to sound fruit growers to finance the production of their crops—to pay cash for their purchases and save the discount. The interest rate is 5%, for the time the money is actually used. We serve growers in Virginia, West Virginia, Maryland, Pennsylvania and Delaware. Perhaps we can assist you.

East Central
Fruit Growers Production Credit Association
Hagerstown, Md.

What a TEAM!

★ ★

Niagara
KOLOFOG

Here's the ideal sulphur summer spray! Niagara KOLOFOG is fused bentonite sulphur—sulphur in its most toxic form—yet a spray which is ***not*** caustic. KOLOFOG, because it does not burn, allows the leaves to make big fruit this year, *and also develop the buds* —next year's crop!

Niagara
SUSPENSO
LEAD ARSENATE

And here's the most effective Lead Arsenate ever developed for insect control. Niagara SUSPENSO Lead Arsenate spreads completely and evenly, insures uniform concentration. In lime sulphur solution it produces no black sludge. Assures maximum killing power and protection to fruit and foliage.

WHEN YOU BUY Niagara YOU BUY PROTECTION

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SOME BULLETINS YOU MAY LIKE

The Relation of Nitrogen and Soil Moisture to Growth and Fruitfulness of Apple Trees Under Different Systems of Soil Management. Circular 414, 1936; Purdue Agricultural Experiment Station, Lafayette.

The Seasonal Course of Soluble Nitrogen and Phosphate Phosphorus in the Shoot Growth of Winesap Apple and Elberta Peach. Bulletin 367. 1936. Kentucky Agr. Exp. Station, Lexington.

Apple Cider & Cider Products. Bulletin 336. 1936. Massachusetts Agr. Exp. Station. Amherst.

Spray Residue Work in Missouri. Bulletin 382. 1937. Missouri Agr. Exp. Station, Columbia.

Cultural Systems for the Apple in Ohio. Bulletin 580. 1937.

Peach Production in Ohio. Bulletin 581. 1937. Ohio Agr. Exp. Sta., Wooster.

Experimental results on the Preservation of Fruits and Vegetables by Freezing. A Progress Report. Circular 122. 1937. Oregon Agr. Exp. Station, Corvallis.

Cost of Producing Apples in Berrien County, Michigan, in 1935. Special Bulletin 286. 1937.

Soil Erosion in Michigan Orchards. Circular 162. 1937. Michigan Agr. Exp. Station, East Lansing.

Preparation and Properties of Bordeaux Mixtures. Bulletin 283.

Growing Raspberries in West Virginia. Circular 72. W. Va. Agr. Exp. Sta., Morgantown.

Tree Root Systems. Extension Circular 152. 1937. North Dakota Agr. Extension Service, Fargo.

Packing Minnesota Fruits for Markets. Special Extension Bulletin 184. 1937. Minnesota Agr. Extension Service, St. Paul.

Commercial Strawberry Growing in Kentucky. Extension Circular 295. 1937. Kentucky Agr. Extension Service, Lexington.

HAVE YOU READ THE ADVERTISEMENTS?

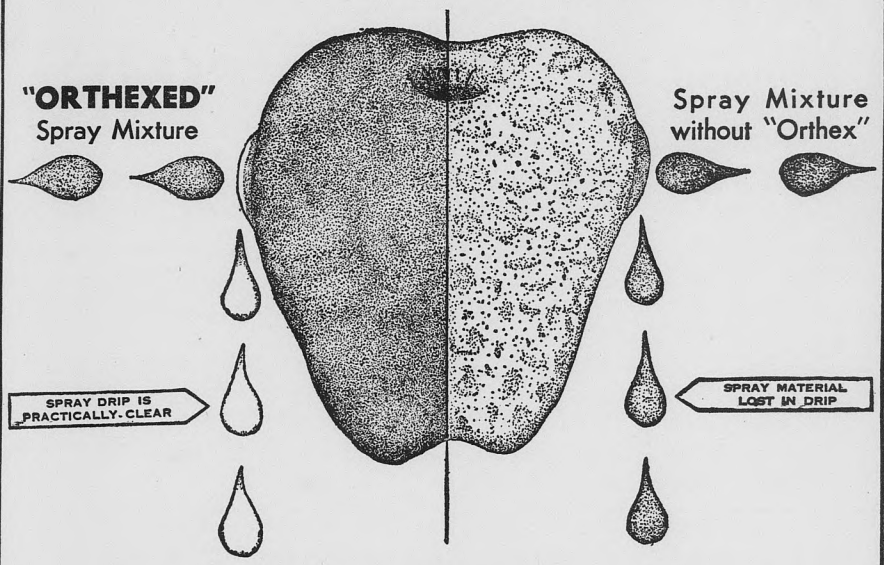
"We were slowly starving, and finally we cut up our boots and made soup of them", said the explorer at the boarding house table.
"Not so loud", cautioned the fellow-boarder, "the land-lady might hear that."

Barber—"What's wrong? Ain't the razor takin' holt?"
Victim—"Yeah, it's takin' holt but it ain't lettin' go again."

I want some grapes for my sick husband. Have these grapes been sprayed with poison?

No, lady, you'll have to buy your poison at the drug store.

Cut Spray Costs By
"ORTHEXING"
Your Spray Mixtures



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ORTHEX SPREADER-ADHESIVE

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WETTABLE, AND PASTE SULPHUR SPRAYS, COPPER SPRAYS, AND ARSENICALS

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CALIFORNIA SPRAY CHEMICAL CORPORATION

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The world's largest manufacturers of agricultural sprays

SAVE

ONE THIRD THE COST OF

NICOTINE

D-X is a spray made on a new spray principle, containing 99% active ingredients in the form of special oils completely impregnated with pyrethrins.

Here is a full strength foliage spray for aphis, red bug, leaf hopper, etc., at one-third the cost of nicotine. It is the first time that a pyrethrum spray has been offered to the commercial orchardist that mixes with lime sulfur, bordeaux, etc., without deterioration.

Use D-X at 1 to 800 in Your

Pre-blossom and Calyx Sprays

One Pennsylvania grower using D-X for the first time says: "D-X is the long-looked-for answer to our contact spray problems".

MAKE LIME SULFUR SAFER

and more effective with

SPRAY CATALIZER

Spray Catalizer controls the normal breakdown of the poly-sulphides, making lime sulfur safe even in slow drying weather.

Spray Catalizer with lime sulfur and arsenate of lead prevents the formation of black sludge (lead sulphide) which reduces fungicidal action and causes so much injury.

Spray Catalizer does not detract from the great fungicidal action of lime sulfur, but adds to it. It contains 60% sulfur itself.

Use 2 pounds per 100 gallons, creamed with the arsenate of lead as it is put in the spray tank.

B. G. Pratt Company

DEPT., "F"

50 Church Street **New York**